# THEORETICAL POPULATION BIOLOGY

## AN INTERNATIONAL JOURNAL


EDITORS

C. C. Cockerham
S. Karlin
N. Keyfitz
T. Schoener

ASSOCIATE EDITORS

N. T. J. Bailey
W. F. Bodmer
J. Bourgeois-Pichat
L. L. Cavalli-Sforza
M. Cody
J. E. Cohen
J. F. Crow
K. Dietz
W. J. Ewens
J. Felsenstein
R. Ginsburg
W. G. Hill
J. M. Hoem
H. S. Horn
S. Hubbel
O. Kempthorne
M. Kimura
B. Latter
R. Levins
R. C. Lewontin
J. McGregor
G. Malécot
R. May
M. Nei
E. Nevo
S. Preston
A. Robertson
J. Roughgarden
J. Maynard Smith
J. Sved
J. Vandermeer
G. Watterson
E. O. Wilson

MANAGING EDITOR

M. Feldman



VOLUME 7 · 1975

ACADEMIC PRESS
New York and London
A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1975 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

*Printed by the St. Catherine Press, Ltd., Bruges, Belgium*

# CONTENTS OF VOLUME 7

## Number 1, February 1975


Jonathan Roughgarden. Population Dynamics in a Stochastic Environment: Spectral Theory for the Linearized $N$-Species Lotka–Volterra Competition Equations . . . . . 1

Freddy Bugge Christiansen and Marcus W. Feldman. Subdivided Populations: A Review of the One- and Two-Locus Deterministic Theory . . . . . 13

C. Cannings and M. H. Skolnick. Genetic Drift in Exogamous Marriage Systems . . . . . 39

R. Dennis Cook and Daniel L. Hartl. Stochastic Selection in Large and Small Populations . . . . . 55

R. Dennis Cook and R. F. Nassar. The Amino Acid Composition of Proteins: A Method of Analysis . . . . . 64

Martin Golubitsky, Emmett B. Keeler, and Michael Rothschild. Convergence of the Age Structure: Applications of the Projective Method . . . . . 84

Dorit Carmelli and Samuel Karlin. Some Population Genetic Models Combining Artificial and Natural Selection Pressures: I. One-Locus Theory . . . . . 94

Samuel Karlin and Dorit Carmelli. Some Population Genetic Models Combining Artificial and Natural Selection Pressures: II. Two-Locus Theory . . . . . 123


## Number 2, April 1975


Clark Jeffries. Stability of Ecosystems with Complex Food Webs . . 149

Norikazu Yasuda. The Random Walk Model of Human Migration . . 156

Daniel L. Hartl. Modifier Theory and Meiotic Drive . . . . . 168

Kenneth L. Cooke. A Discrete-Time Epidemic Model with Classes of Infectives and Susceptibles . . . . . 175

Marcus W. Feldman and Jonathan Roughgarden. A Population's Stationary Distribution and Chance of Extinction in a Stochastic Environment with Remarks on the Theory of Species Packing . . . 197

Robert M. May. Change in Gene Frequency under Selection in a Finite Population: A Comment . . . . . 208

W. J. Ewens and K. Kirby. The Eigenvalues of the Neutral Alleles Process. . . . . 212

Samuel Karlin and Haim Avni. Derivation of the Eigenvalues of the Configuration Process Induced by a Labeled Direct Product Branching Process . . . . . 221
Frank Wm. Oechsli. A Population Model Based on a Life Table that Includes Marriage and Parity . . . . . 229
N. E. Morton. Kinship, Information and Biological Distance . . . . 246
G. A. Watterson. On the Number of Segregating Sites in Genetical Models without Recombination . . . . . 256

Number 3, June 1975

K. Kirby. A Discussion of Simulation Results for Various Aspects of the Neutral Alleles Model . . . . . 277
B. F. J. Manly. The Measurement of the Characteristics of Natural Selection . . . . . 288
Carlo Matessi and Francesco M. Scudo. The Population Genetics of Assortative Mating Based on Imprinting . . . . . 306
A. Jacquard. Inbreeding: One Word, Several Meanings . . . . . 338
Samuel Karlin. General Two-Locus Selection Models: Some Objectives, Results and Interpretations . . . . . 364
Samuel Karlin and Dorit Carmelli. Numerical Studies on Two-Loci Selection Models with General Viabilities . . . . . 399

Author Index . . . . . 422